Update on photon analysis

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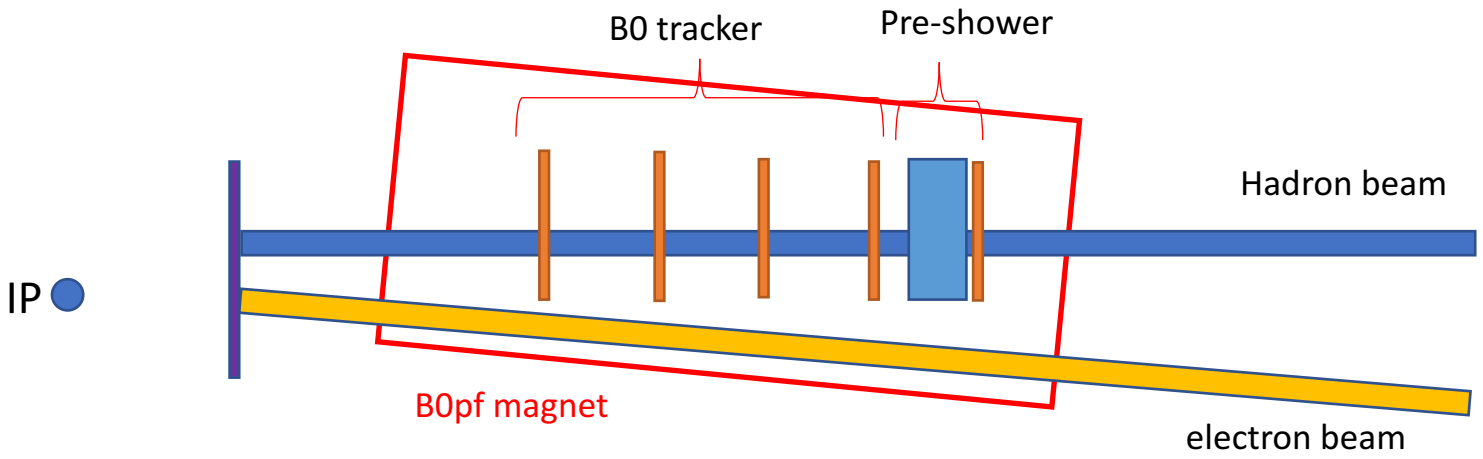
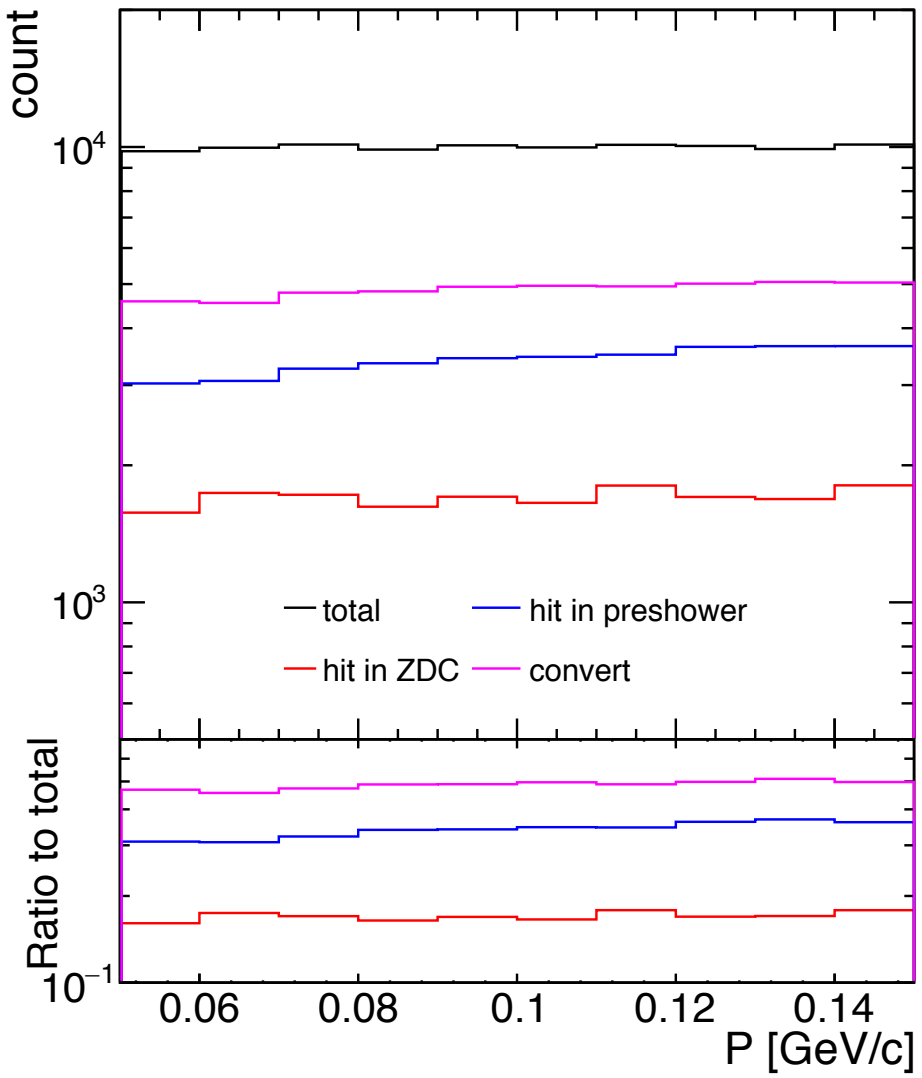
Pre-shower



- Before installing pre-shower, the four silicon layers are evenly distributed in the magnet, occupying almost the entire space of the magnet.
- Shorten the space between the 4 silicon layers (B0 tracker), to make room for the pre-shower.
- Pre-shower consists of a lead layer (thickness is 6mm, the radiation length is 5.6mm) and a silicon layer (thickness is 0.3 mm), the space between these two layers is ~2mm.

Momentum distribution



Photon gun: energy 0.05-0.15 GeV
theta 0-20mrad
100k events

total: MC generated

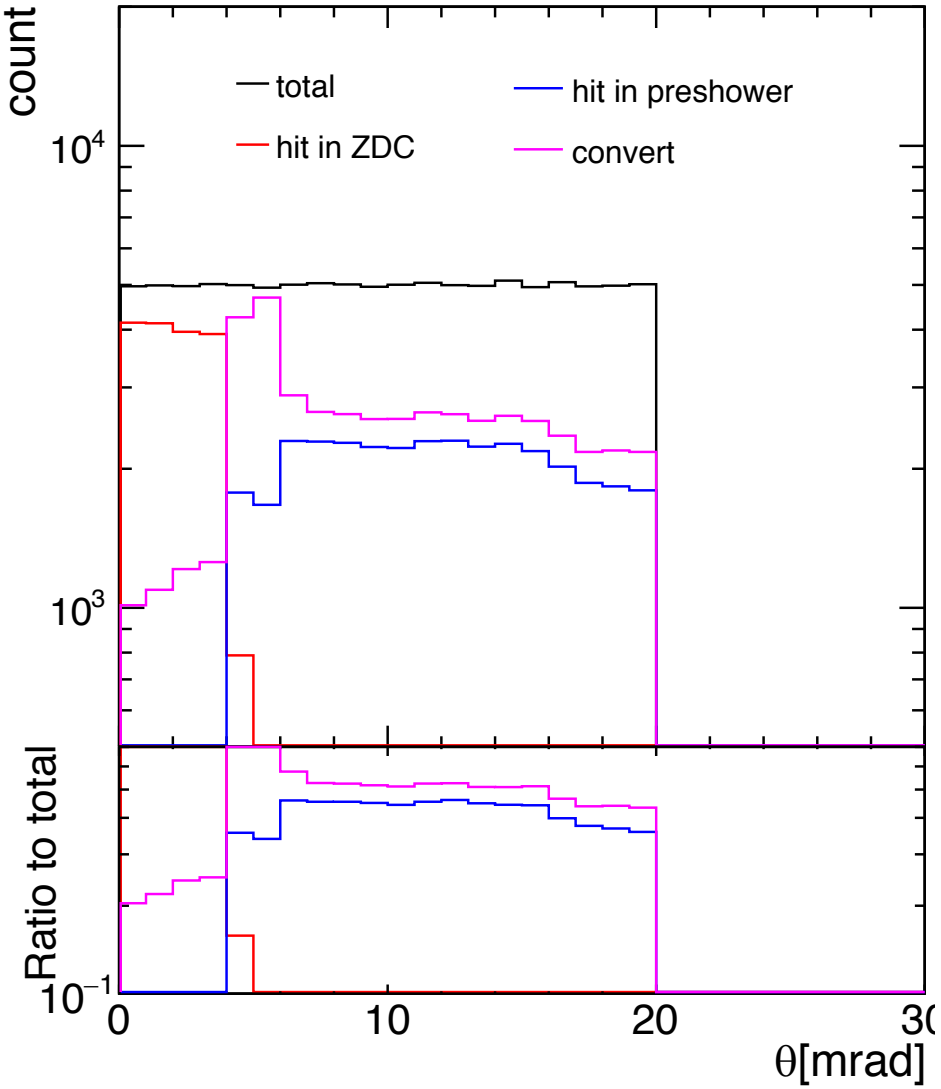
hit in ZDC: hits are left in ZDC
(zdcHitArray->GetEntriesFast() > 0)

hit in preshower: hits are left in the pre-shower
(preshowerHitArray->GetEntriesFast() > 0)

convert: the number of track of this event is >1
(mcTrackArray->GetEntriesFast()>1)

	count
total	100000
hit in ZDC	17020
convert	48671
hit in preshower	34043

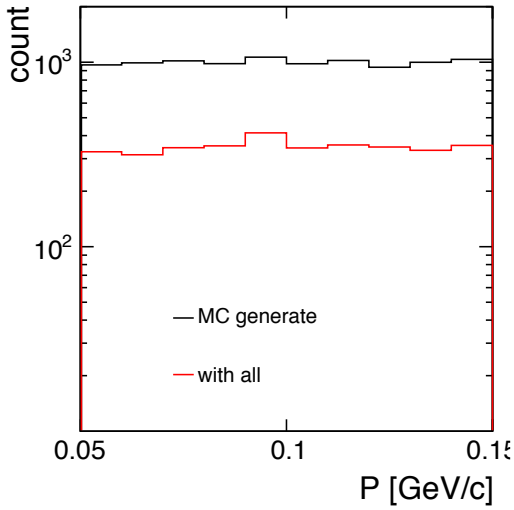
Theta distribution

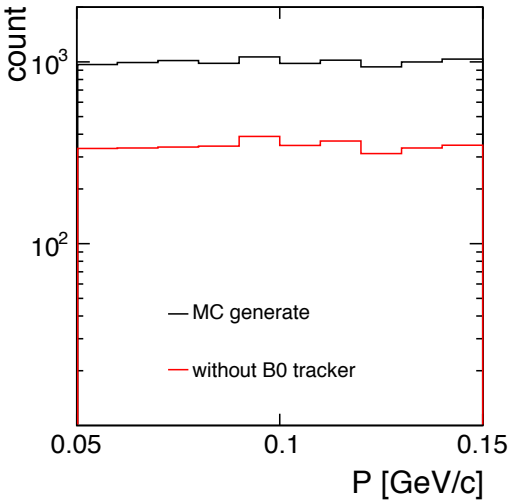


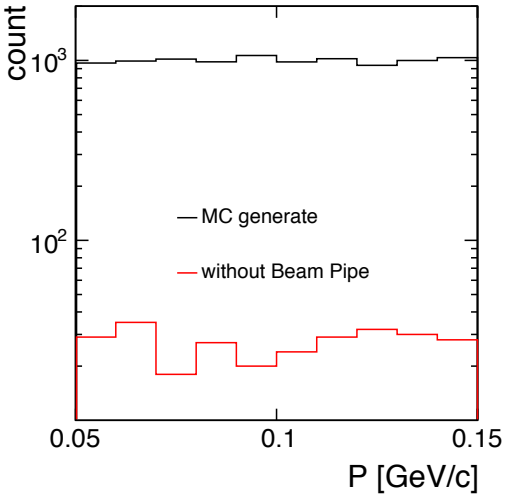
Photon gun (0-5mrad)

Photon gun: energy 0.05-0.15 GeV
theta 0-5mrad
10k events

The distribution of photon convert by :
MC generate: all photons of MC generated
with all: with all detector elements
without B0 tracker: comment “B0 tracker” out
without Beam Pipe: comment “beam pipe” out



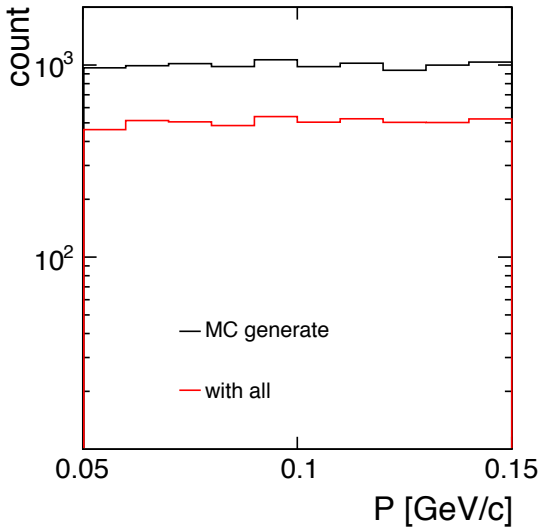


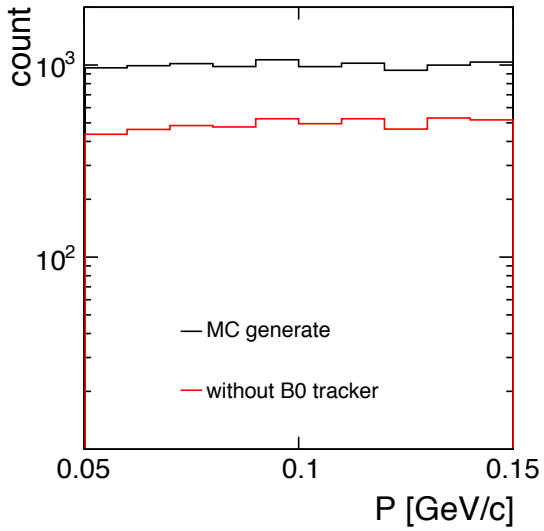


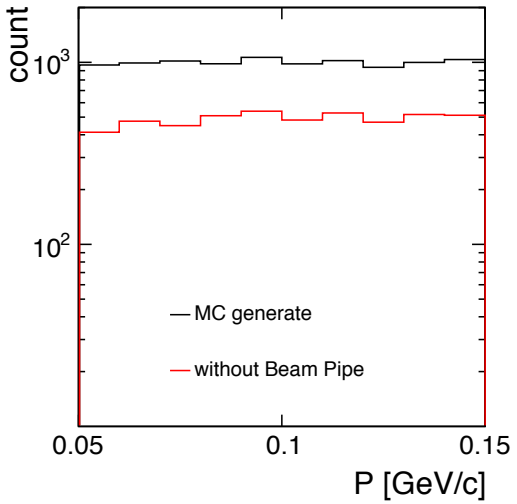
	Event counts		
	Photon convert	Hit pre-shower	Hit ZDC
With all	3485	858	6842
without B0 tracker	3454	865	6850
without Beam Pipe	272	212	9408

Photon gun (6-20mrad)

Photon gun: energy 0.05-0.15 GeV
theta 6-20mrad
10k events







	Event counts		
	Photon convert	Hit pre-shower	Hit ZDC
With all	5062	4337	6
without B0 tracker	4915	4357	8
without Beam Pipe	4892	4256	19

Backup

Momentum vs. theta